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Use of Social Collaboration Tools in an Organisation

AALTO UNIVERSITY
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ABSTRACT OF
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Abstract:

In this Master's thesis I studied a global company's social collaboration tool user preferences and usefulness. In this study I've scrutinized previous studies about social collaboration tools, choosing the tools and employee networks.

The research material was gathered by interviewing a group of active and a group of random social collaboration tool users. The user preferences of these two social collaboration tool user groups were compared, and conclusions were made about how to get the random users to utilize the social collaboration tools more.

In addition to this the current situation regarding the social collaboration tools in the company was examined: Are some type of tools missing? Are there useless tools in use? What type of tools are the most important? Suggestions are made in this study how to develop the social collaboration tools in the company.

The conclusion is that the introduction to the use of the tools should be included as an integral part in the orientation program of new employees in the company, as well as guidelines for existing users should be promoted. In addition the tools should be constantly developed more functional, they should be integrated together better, and managerial support for social collaboration tools should be seamless in the organisation. Lastly special emphasis should be placed on the promotion of the most popular social collaboration tool, as it is the tool that the greater part of social collaboration tools use.

Keywords: "social collaboration tools", groupware, "professional network", "employee network, network, "sosiaaliset yhteistyökalut", ryhmätyökalut, "ammatillinen verkosto", työntekijäverkosto, verkosto

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Tiivistelmä:

Tässä diplomityössä tutkittiin monikansallisen yrityksen sosiaalisten yhteistyökalujen käyttötottumuksia ja hyödyllisyyttä. Työssä käsitellään aikaisempia tutkimuksia työkaluista, niiden valinnasta, sekä työntekijän ammatillisesta sosiaaliverkostosta. Tutkimusaineisto kerättiin haastattelemalla sosiaalisten yhteistyökalujen aktiivi- ja satunnaiskäyttäjiä. Näiden kahden käyttäjäryhmän sosiaalisten työkalujen käyttötottumuksia vertailtiin, jonka jälkeen tehtiin johtopäätöksiä siitä, miten satunnaiset käyttäjät voisi saada paremmin hyödyntämään kyseisiä työkaluja.

Tämän lisäksi tutkittiin yrityksen tilanne kyseisten työkalujen suhteen: Puuttuuko jonkun tyyppisiä työkaluja? Onko käytössä hyödyttömiä työkaluja? Minkä tyyppiset työkalut ovat tärkeimpiä? Työssä annetaan myös ehdotuksia sosiaalisten yhteistyökalujen kehittämiseen.

Johtopäätöksenä todetaan että sosiaalisten yhteistyökalujen koulutus tulisi sisällyttää kiinteäksi osaksi uuden työntekijän perehdytyskoulutusta, kuten myös ohjeistusta työkalujen käytöstä olemassa oleville työntekijöille tulisi edistää. Tämän lisäksi sosiaalisia yhteistyökaluja tulisi kehittää toiminnallisemmiksi, niiden integraatiota pitäisi kehittää ja sosiaalisten yhteistyökalujen tuki organisaation esimiestasolla tulisi olla saumatonta. Viimeiseksi erityisesti tulisi painottaa suosituimman sosiaalisen yhteistyökalun mainostustamistaa, koska valtaosa sosiaalisten yhteistyökalujen käyttäjistä ovat tämän työkalun käyttäjiä.

Avainsanat: “sosiaaliset yhteistyökalut”, ryhmätyökalut, “ammatillinen verkosto”, työntekijäverkosto, verkosto, “social collaboration tools”, groupware, “professional network”, “employee network”, network

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This is just the beginning,
I think.

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1 INTRODUCTION

Working methods in large companies have vastly changed in the last ten years. For a company engaged in the manufacturing of mobile devices and in converging internet and communications industries, this shift has meant an increase in the amount of tools used for work. Mobile phones and e-mail are still used, but other tools have emerged that are used online with a computer or a smartphone.

These social collaboration tools include instant messaging, web conferencing, blogging, microblogging, wiki pages, shared workspaces, social networking sites, video blogs (corporate video), and personal sites. The objective of these tools is to increase transparency of information within the corporation, to optimize sharing of knowledge.

But productivity can't be increased just by making knowledge sharing easier with new social collaboration tools. There are several challenges that need to be tackled in order to get the most use out of social collaboration tools. These challenges include for example user adaptation, correct use of tools and optimizing tool design. Most of all, the organisation needs to have a culture that promotes knowledge sharing to start with, no collaboration tool will be able to create this culture, but it can enable it.

The purpose of this study is to understand the use of the current social collaboration tools; what types of tools are meaningful for a global company and how they should be utilized. In this study I will introduce the most common social collaboration tools that are used in company X currently and I will present a classification model for the choice of tool in different situations. I will present findings from studies about the benefits and challenges each tool has. I will also present the concept of employee network and its' significance in an organisation operating in a global scale.

In the second chapter I will introduce a theoretical framework, which divides the tools into four groups according to their correct use. I will define the social collaboration tool concept and introduce the collaboration tools chosen to be examined in this paper. In the end of the chapter I will go through challenges and critical success factors previous research has found related to these tools.

In the third chapter research questions and methods of performing the study are presented. In this study twenty employees of Company X are interviewed about their social collaboration tool using preferences. I will present the results of the interviews in the fourth chapter and a cross-case analysis between the two types of user groups is also done. In the final chapter I will present my findings, evaluate the study and give my suggestions for further research topics related to the subject of this study.

2 THEORETICAL FRAMEWORKS

2.1 Introduction

My goal is to introduce two concepts in this chapter that are intertwined with each other. Employee networks, in which I see the smallest unit of productivity consisting of one employee and the people around him / her. The person utilizes others' capabilities and provides help for others and together they get work tasks done. The other concept is the social collaboration tools, which is the main emphasis of this paper. I will introduce a theory how to categorize the tools, and also present the tools explored within this thesis study. Before these concepts I will introduce collaboration in a general level. Lastly I will introduce a stakeholder aspect for the social collaboration tools and evaluate critical success factors of the social collaboration tools examined.

2.2 Collaboration in a Global Company

Why does a company distribute globally? Herbsleb et.al (2000) describe that big corporations are becoming increasingly distributed for a few reasons. First, mergers and acquisitions to adjust and complement production often lead to new sites becoming part of the company. Second, to be able to operate in some distant market, a country's governmental regulation might make it impossible to do so without having a local office in the country of that market. Third, it can make sense for market reasons to locate parts of the corporation where the market for a particular technology exists. Fourth, the competition for highly skilled workers is driving companies to hire them from wherever they are found. Lastly, especially with software companies, geographic distribution can enable round-the clock development of products, which offers the promise of reducing development cycles by increasing the amount of time in the day that software is being developed.

All this distribution on behalf creates a vital need for global collaboration.

Hakonen, Koivisto and Ruohomäki (in Vartiainen et al., 2007) define global collaboration as distributed collaboration, which does not take place in a single place, and can be conducted almost anywhere with the help of advanced information and communication technology. Vartiainen (Vartiainen et al., 2007) explains that work is becoming more and more multi-locational. Thanks to mobile and wireless technologies, work is no longer bound to the same physical space. Employees are increasingly collaborating from afar with each other, which creates distributed and virtual organisations. According to Vartiainen it has been calculated that around half of the workforce who are collaborating from afar with their colleagues, are also doing virtual distributed work. To be able to develop the workplace and facilitate the work for employees working more and more mobile and in virtual teams, it is necessary to find out how they work in detail and what their job requirements are (Vartiainen et al., 2007).

According to Allen (1977) a study of engineering organisations reported that the frequency of communication among engineers decreased with distance. Further, was noted that when engineers' offices were about 30 meters or more apart, the frequency of communication dropped to nearly the same low level as people with offices separated by many miles.

It can't be stressed enough how important effective collaboration is in a global company. When employees and employers work in different parts of the world, the functionality of the virtual team becomes vitally important. This study concentrates on the social collaboration tools provided for this collaboration, but I will briefly go through some of the key factors that generally affect global collaboration. A virtual team is a concept that is an established part of collaboration in global company.

2.3 How does global collaboration work in a company?

Vartiainen describes the advantages and disadvantages of virtual organisations (Vartiainen, 2001). As for the advantages - virtual teams are more flexible, responsive, cost less, utilize resources more effectively as the company expands and faces constraints in product development due to outsourcing production. Real-estate costs are cut with vir-

tual teams, and they encourage closer contact with clients and customers. Virtual teams also facilitate access to experts. There doesn't need to be a physical proximity in order to communicate with someone. Outside consultants don't need to travel to the premises; the company can expand its' potential labour market easily as a hired expert doesn't necessarily have to move to where the company is physically located. Dynamic team membership allows moving from project to another. Employees can be a part of many coexistent teams and projects. A global company operates in multinational markets. This requires comprehension of different cultural customs and languages; the needed expertise can be scattered to where it is needed.

As for the disadvantages in virtual organisations, Vartiainen (Vartiainen, 2001) mentions low commitment, obscurity of role in the team and absenteeism. Customers can perceive unreliability and inconsistency due to non-physical presence. Lack of physical interaction is evident, and can cause niche groups in the team due to language for example. No sense of identity is also a problem in virtual teams. There is no "we", as team members are out of sight and because of that also out of mind. Team members aren't exactly sure what another member skillset is. Informal networks are not created in virtual teams like in co-located teams. When a virtual team does meet physically, it's costly and agendas are too full. Time zone differences are a problem too as team members are likely to have to work outside normal working hours. Travel is a burden also. Lastly the technology that enables global collaboration and virtual teams has been set unrealistic expectations, and is costly in addition.

Altamirano (Altamirano, 2011) states factors that are required for collaboration to function on a global scale. The company needs a collaboration process design and stability where all employees' activities can be coordinated. The employees need to be trained properly so that they are able to utilize the tools provided for collaboration. A proficient ability to use the tools is very important as physical presence is not usually possible. The diversity and thus different skills of the global team are the body of knowledge that prepares the company react to unexpected situations. Online platforms are critical for global organisations as they function as virtual offices that enable spread out teams to work fluently. The company has to be able to "orchestrate" and integrate the work of spread out employees. Altamirano also states that work flows where it can be done the best in global teams. A company can only differentiate itself by having different talents and there are skilled professionals all over the world that can be utilized in a global

company. Lastly confidence and trust is important to attain effective global collaboration.

2.4 Inter-organisational employee networks

Innovation research has long highlighted the significance of personal networks for innovation. Cross-industry networks between employees have been found to stimulate the development and adoption of innovations (Erickson & Jacoby, 2003). Individuals can come up with new ways of combining technologies or market opportunities that are useful to their own organisation with the help of inter-organisational networking. Also combining talents and starting collaborations can be extremely useful to all parties involved.

Vartiainen (Vartiainen et.al, 2007) explains how work is becoming more multilocational and more distributed; the role of employee networks is becoming more inherent. These employee networks don't have to be limited to function within an organisation. A person's professional network isn't limited to the organisation, and a knowledge worker who is aspiring to develop his or her professional skills, will be in contact with employees from other organisations. The innovations companies have to produce and competition between companies rely on the utilization of inter-organisational networks. Jolink and Dankbaar (Jolink & Dankbaar, 2010) present management practices that positively influence employee networking behaviour based on factors that affect networking behaviour found in literature. These factors include:

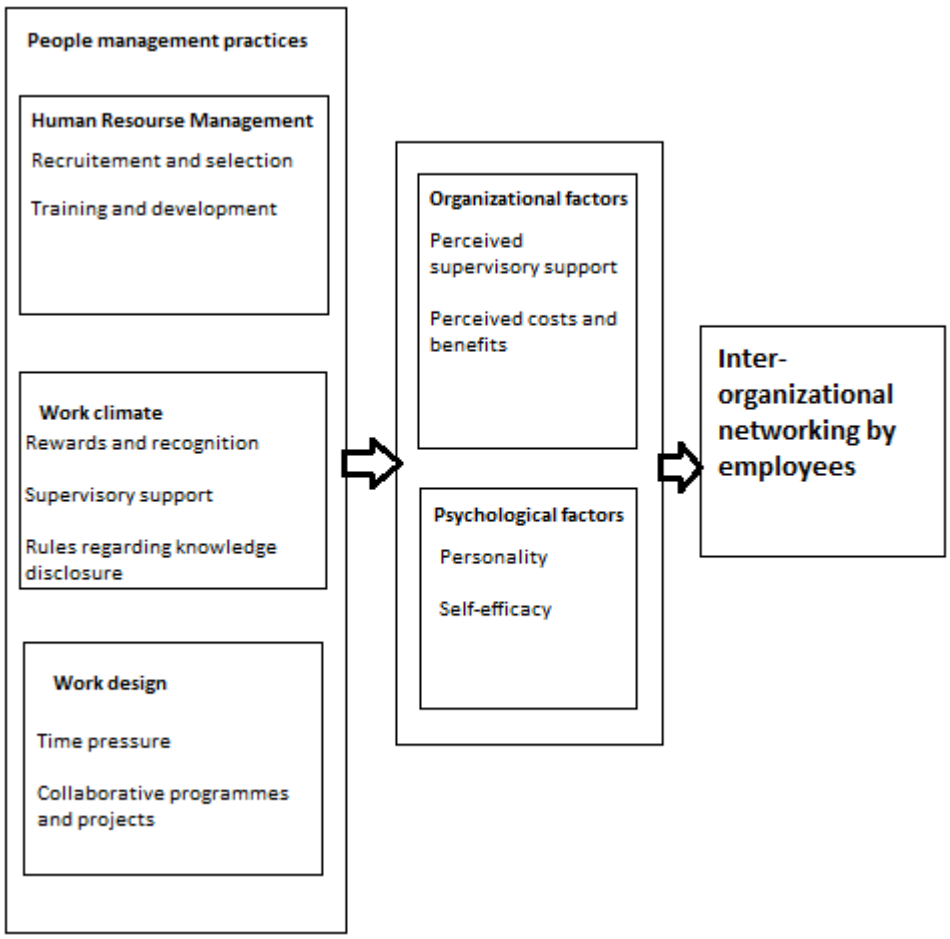

Figure 1. Proposed relationship between people management practices and inter-organisational networking by employees (Jolink & Dankbaar, 2010)

1. Recruitment and selection
2. Training and development
3. Rewards and recognition
4. Supervisory support
5. Rules regarding knowledge disclosure
6. Time pressure
7. Collaborative programs and projects

Figure 1 shows the relationship between people management practices and inter-organisational networking by employees. In order to realize how these managerial factors function according to Jolink and Dankbaar (Jolink & Dankbaar, 2010) actually help

create inter-organisational networking, let's break down this model and its' factors. People management practices are the company's most important aspects and extremely hard to imitate by other companies.

Recruitment and selection can emphasize networking significantly in the job announcement, job description, and selection process. Personality traits like openness and willingness to experiment can be characteristics a company can look for in a potential employee in order to promote networking. Hiring people with extensive or diverse work experience are likely to have built a good reputation, which will benefit from networking. A part time arrangement can also be useful to the company as it can for example build bridges with scientific networks when hiring professors. Recruitment and selection should emphasize communicative personalities, who are open to new experiences. Candidates with already an extensive network should also be preferred. By establishing

Training and development the company signals to the employees that the organisation is interested in their long-term development. Training can positively influence employees' self-efficacy levels and this is likely to make employees more prone to share to share their ideas and engage in networking. Job rotations can be an effective way of training also and contribute to more inter-organisational networking within a company. Jolink and Dankbaar's (Jolink & Dankbaar, 2010) study shows:

Rewards and recognition also as a significant incentive to networking. The prospect of promotion is likely to provide a strong motivation for employees to network and develop the desired and necessary skills. The reward system has to be designed with care though, as extrinsic rewards can have negative effects on intrinsic motivation.

Supervisory support is crucial according to Jolink and Dankbaar (Jolink & Dankbaar, 2010): several studies show if employees feel their information sharing appreciated, they will be more inclined to share. support from the direct supervisors is most important. Creating a climate of sharing and networking by showing examples from previous experiences and communicating it to the employees will lead to better networking behaviour.

Rules regarding knowledge disclosure when dealing with inter-organisational networking outside the company need to be established on some level. The balance of benefits compared to negative effects is very likely to be on the positive side as companies may expect reciprocity from other network partners. By sharing some knowledge will spill over to competitors but Toyota sees more benefits in the sharing of its innovation activities; they don't share certain designs, but other than that Toyota shares knowledge openly with potential partners (Dyer and Nobeoka 2000). Jolink and Dankbaar (Jolink & Dankbaar, 2010) found that revealing knowledge makes the company look more robust and more attractive to collaborate with; the company's reputation boosts a company's reputation if it is open regarding research and innovativeness.

A certain constraint that can affect an employee's networking and sharing activities is *time pressure.* Jolink and Dankbaar (Jolink & Dankbaar, 2010) found time pressure can either be too high or even too low. If performing the job is too high pressured, the employee will resort to routines to optimally try to resolve problems. In this case additional inter-organisational searches can be just considered as extra time spent on top of an already full schedule. But Low levels of time pressure can also result in less stimulation and lower engagement, due to the job not offering enough challenge (Singh 1998; Zivnuska, Kiewitz, Hochwater, Perrewe and Zellars, 2002).

To further develop the utilization of networking the organisation should generate *collaborative programs and projects* where new ties and connections are developed between employees. Designing these projects is a chance for employees across organisations to work together. If working on a projects like these is the job, it won't be seen as a burden. Above this Jolink and Dankbaar (Jolink & Dankbaar, 2010) see that sharing knowledge in these type of projects is seen as a contribution to the collective performance. By establishing collaborative programs, the organisation signals that employees are important.

The organisation's role in supporting networking behaviour is significant. Oldham's (2003) study found supervisors' and peers' support for sharing ideas among workers to be a critical factor it to happen. Networking behaviour can be expected to function in a similar way, thus *perceived supervisory support* is a pivotal networking factor. If networking is encouraged, the costs perceived should be lower than the perceived benefits.

This could be achieved if successful networking would create collective knowledge or ideas, that would be useful for many members in the network. The possibility of collective ideas or knowledge could motivate network members to contribute their ideas and knowledge. *Psychological factors* will always play a significant part on the individual's tendency to network and share knowledge. Out of a human being's five personality traits (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) (Goldberg 1990) extraversion, which refers to a person's extent to which he or she is outgoing, active assertive and talkative, will be significantly important for networking. According to Kanfer and Tanaka (1993) extravert individuals who are more social and talkative, are expected to be a part of larger networks and more diverse networks than introverts. *Self-efficacy* is the other psychological factor affecting networking according to Jolink and Dankbaar (Jolink & Dankbaar, 2010). It refers to the employee's own beliefs about his or her own abilities, in this case the value his or her ideas or knowledge. Therefore the sense of personal competence and confidence is important for networking.

2.5 Executing employee networks

In order to create employee networks that are beneficial to the organisation, they have to be mapped and analysed to define the value created within an employee network. Cross et.al (2006) propose that the first step is to identify functions or activities where connectivity is most vital, and then map relationships within those priority areas. This can be done by tracking emails, observing employees, using existing data or administrating questionnaires. Then network maps can be created using these tools. After this time spent on various interactions has to be found out in order to define the cost. Questions can be asked such as "how much time did it save you working with employee x".

Once there are results the goal is to replicate high-performing networks. Also certain interactions can be promoted that can boost productivity. Targeted activities are preferred as they are more effective than promoting connectivity generally as it can burden already overloaded employees. Cross et.al further explain that through these activities "relational value" can be created that consists of:

- Generating revenue – a network view often uncovers "hidden" people whose contribution can improve performance significantly
- Improving cross-selling – the analysis can help find where collaboration creates revenue and where it hinders it. This information can be then used to re-organize the network and possibly replicate it.
- Enhancing career paths – finding the top performers in the network and recognizing their efforts.
- Boosting productivity – network analysis can isolate bad job designs, process steps or inferior organisational designs.
- Validating the effectiveness of networks, sharing good ideas – create many smaller knowledge sharing networks around focused subjects and have them share best practices to enhance the performance of every network.
- Improving allocation of resources – Network analysis can allow an organisation to find most beneficial network connections and embrace them.
- Eliminating inefficiencies – network analysis can help find inefficient collaborations. The analysis can help root out those inefficiencies by analysing their characteristics and integrating those shortcomings as a focus on trainings. Also unrealized collaboration needs can be nurtured. Network analysis also enables setting appropriate staff levels.

Cross et.al (2010) also examine characteristics that make employee networks "really work". They argue the key to delivering both operational excellence and innovation is having networks of informal collaboration instead of older managerial tools such as defined roles, best practice processes and formal accountability structures. Cross et.al propose four main points how to make most use of employee networks with the use of network survey:

- *Attain benefits of scale through effective global collaboration*. Organisations can construct teams to leverage diverse expertise and drive implementation of new ideas across geographies. By carefully studying collaboration challenges across functions and geographies, they can identify gaps, enhance connectivity and best practice transfer in specified ways. Building lateral networks targeting specific

issues common in all geographical areas can also be an effective way of collaboration. Visualizing the existing networks can be useful in defining the best intervention strategy if existing networks are large. Cross-organisational networking can also hinder and network analysis can help reveal network silos that can be addressed after being spotted.

- *Drive work force engagement and performance*. Studying networks of high performers can show employees who play similar roles how to improve their own performance. It can help leaders identify the individuals who energize the organisation and how to leverage their contributions. It's important to realize some line of work carry certain type of networks. For example a programmer can be more effective when noncritical connections are eliminated. High performers energize other employees, and bring the best out of their co-workers. At the same time network analysis can help find disengaged employees.

- *Align collaborations with business partners and external stakeholders.* CIOs need to know how effectively their units serve the needs of business stakeholders. By creating a detailed map of the existing cross-organisational relationships, they can see where innovations are occurring, where sufficient support is being provided and where investments should be made. Again, some types of work carry certain type of tendency to network more externally and these predictable characteristics should be taken to account.

- *Minimize network inefficiencies and collaborative costs.* The nature of IT projects requires observation of how one project will affect all other related applications, company infrastructure and processes. There is a danger that collaboration can become counterproductive if there are too many people involved in project decision points. Process efficiency can sometimes be improved if network connectivity is reduced.

  Network analysis provides the basis for analysing congested collaboration points. If inefficiencies are determined to be caused by requirements from a certain individual, then data can be redistributed or the organisational structure can

be changed (share the load) to modify decision points. Inefficiencies caused by required technical expertise can be addressed by trainings. Cross et.al (2010).

2.5.1 Communities of Practice

When considering an employee network in a company that deals extensively with tacit knowledge, the theory of communities of practice is substantial. Wenger (2004) defines CoPs (communities of practice) as:

- Groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn how to do it better
- Social structures that focus on knowledge and explicitly enable the management of knowledge to be placed in the hands of practitioners.

Millen (Millen et al., 2002) defines CoPs by a group which have a common disciplinary background, similar work activities and tools, and shared stories, contexts, and values. Practitioners of cops share resources i.e. experiences, problems, solutions, tools and methodologies (Gannon-Leary & Fontainha, 2007).

According to Ziegler (Figure 2) communities of practice provide an opportunity for growing your knowledge equity by absorbing information from other group members. Also the negative effect of an organisational change can be offset in a CoP by assigning responsibility to community members to maintain knowledge so that it does not get lost. Communities of practice also make relationships stronger beyond the organisation. In a CoP ICT tools like social media are utilized to update knowledge in a systematical manner. Communities of practice treat knowledge like a "living asset", that has to be nourished (Ziegler, 2009).

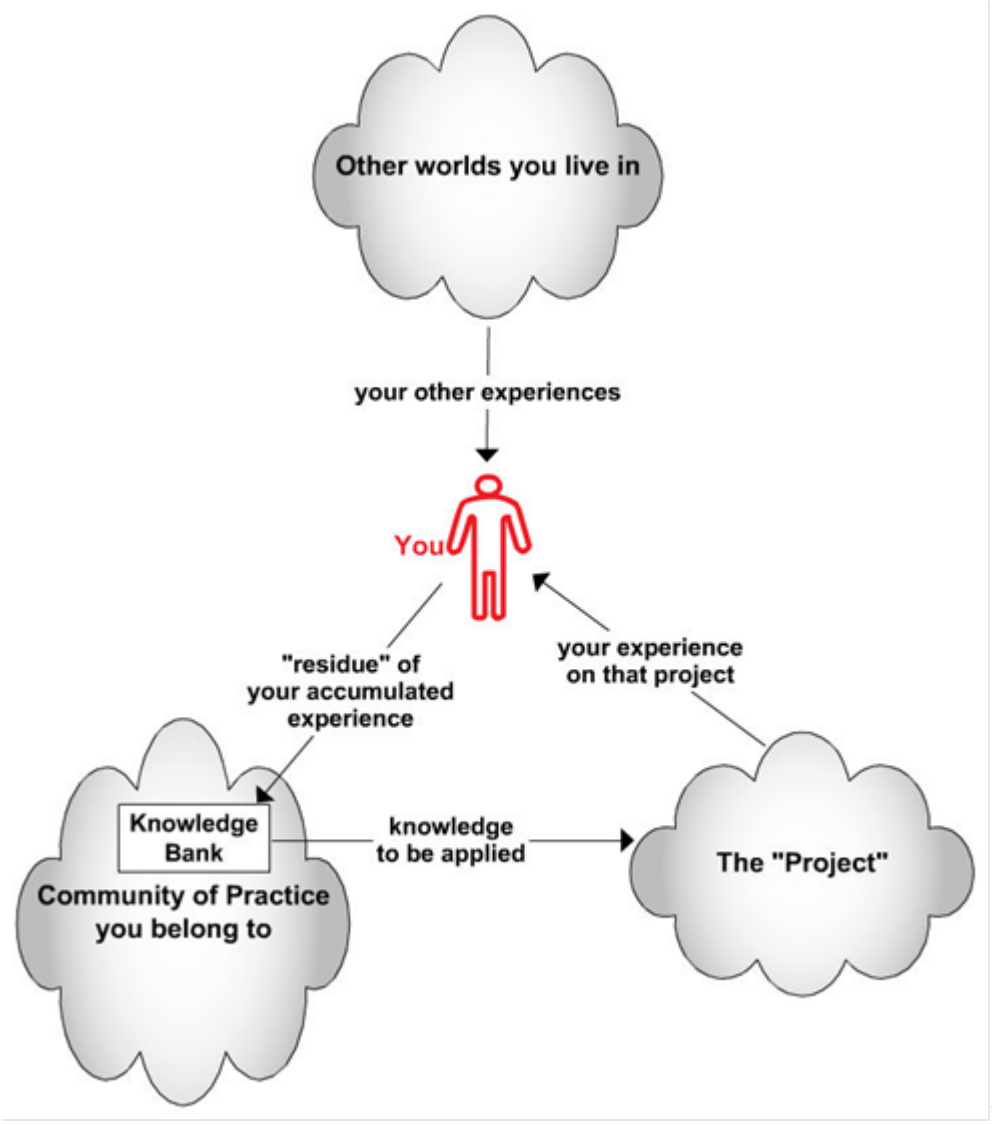

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Figure 2. The individual's role between the community of practice and the organisation. (Ziegler, 2009).

People belong to communities of practice at the same time as they belong to other organisational structures: business units, teams and networks. In communities of practice they develop the knowledge that they need in order to do tasks of those other organisational structures (Wenger, 1998). Communities of practice differ from those other kinds of groups in the way they define their enterprise, exist over time, and set their boundaries. They differ from a business functional unit in a way that they define themselves in the doing, as members develop among themselves their own understanding of what their practice is about. The boundaries of CoPs are more flexible than those of organisational unit. People can participate in different ways and to different degrees.

Communities of practice offer many benefits for individuals. Millen et al. represent many of those in (Millen et al., 2002). One of the most important ones is that communities of practice encourage member interaction and participants' ongoing professional development and learning regarding new tools, methods and procedures. Being a part of a community of practice helps perceive the meaningfulness of one's work in the organisation as well as what other's work means in the organisation. Community of practice means having people who are enthusiastic about the same things work together in a group sharing ideas. The feeling of connection is a substantial part of a community of practice. This automatically brings increased levels of trust between knowledge workers (Millen et al., 2002).

Lemesianou et al. stress that in communities of practice best practices are formed by sharing and debating over problems. Immediate feedback is a significant part of this process. Energy won't be wasted on reinventing solutions once the members engaged in the problem solving are in active contact with each other. This way everyone is up to date with the latest developments in the organisation (Lemesianou & Gutierrez, 2003). Wenger et al. points out the benefits newcomers get from a community of practice. The group creates many opportunities for learning; newcomers learn by implementing theory into practice and core members get the fresh point of view from less engaged participants. A community of practice simply improves the process of learning (Wenger, 2004).

2.6 Social Collaboration Tools

In this chapter the different social collaboration tools are presented and theories involving the categorization of them are introduced. To narrow down my research to a meaningful domain, I've chosen the most popular social collaboration tools used in Company X for my research. First I will define the term "social collaboration tool". After this a categorization which tool to use in a certain situation is introduced. Then I will introduce the tools and in the end of the chapter I will discuss challenges and benefits related to the tools based on previous studies and interviews with professionals.

2.6.1 Definition of Tools

When defining social collaboration tools it is in literature usually defined as collaboration technology or software. “Collaboration technology” according to Andriessen refers to all ICT-applications that are designed to support co-operative work (Andriessen, 2003). In his definition one of the biggest goals of collaboration technologies is to help co-ordinate who far from each other and allow them to interact with distant sources of data. All applications that support interaction in work or between organisations fall under Andriessen’s definition.

“Collaborative software” is a broad definition that overlaps with computer supported co-operative work (CSCW). In some literature the two are the same. Carstensen and Schmidt (1992) state that CSCW is part of groupware and thus addresses “how collaborative activities and their co-ordination can be supported by means of computer systems”.

“Social software” also partially covers social collaboration tools. Social software applications according to Allen include communication tools and interactive tools. Communicational tools consist of capturing, storing and presenting communication, usually written but increasingly including audio and video also. Interactive tools handle mediated interaction between two or more people. Interactive tools establish and maintain a connection among users, facilitating the mechanics of conversation and talk (Allen, 2004). Carstensen argues that social software like wikis, chat, email belong to this category when they’re used for group work. Social software on the other hand applies also to programs that are used outside the workplace, e.g. social networks like Facebook or Twitter.

2.6.2 Categorization of Tools

One of the main challenges with social collaboration tools is choosing the right tool for your message (Figure 3). If the broadcaster wants the optimal reception for the message being sent, a certain protocol should be followed. Roth introduces a framework for this protocol.

Figure 3. Tool choice generation (Roth, 2010).

According to Roth the traditional strengths/weaknesses –approach to deciding which tool to use are too complex, thus he introduces a "Decision Point" to break down the decision into parts that narrow down the number of solutions weighing all the decision factors. Decision point addresses systematic, repeatable content and messages rather than the average information workers random messaging-decision. One has to bear in

mind that this models does not apply to every possible situation, there are always exceptions.

The communication, collaboration and content model template diagram (Figure 4, Roth 2010) works as a basis for CCTS (the communication and collaboration tool selector) described in this chapter. It is intended for high value, repeatable situations where formal guidance is more likely to be followed.

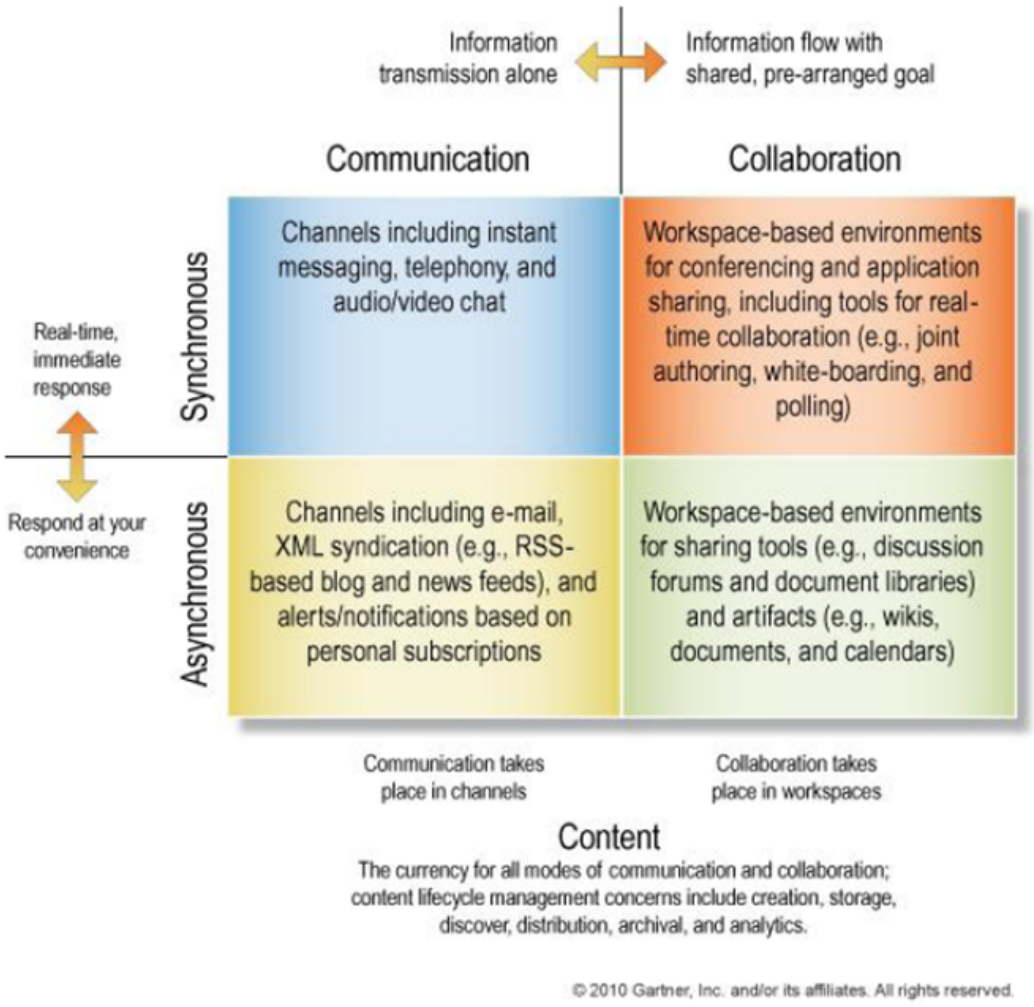

Figure 4. Model template diagram for communication, collaboration and content (Roth, 2010).

The model template diagram for communication, collaboration and content divides collaboration tools into four groups depending on the requirements of the transmitter. Messages are divided in terms of the response's time sensitivity (now or at the recipients' convenience), whether the messaging is communication (information transmission) or collaboration (information flow with a set goal) and also the nature of the content dictates which tool should be used. I will later go into detail which tool belongs to which category.

Before CCTS can be applied certain requirements should be filled. According to Roth (2010), in fact, it only makes sense in a narrow set of roles and situations to logically analyze the messaging choices available. But in these situations' importance validates the use of the framework. The requirements for the message include: systematic delivery (e.g. "message from the President" or IT communication of outage). High business value-message (e.g. information about a prospect for sales department), occurrence of teachable moment (e.g. use of wiki with best practices defined). Lastly messages that consist of informal cooperation.

Like mentioned earlier the use of a flow chart like this has constraints. These constraints can be negative (which need to be addressed) or positive (which justify expectations). Negative constraints decrease overall productivity and an attempt should be made to minimize them. These negative constraints include:

- Expediency. Sender may use the tool that gets the message out the fastest, and may not switch to proper channel.
- Availability. Senders use only the tools they have access to. The right tool might be hard to access; it may require a password that is hard to remember Tools should be made easy to access.
- Familiarity. The right tool might not be familiar to the sender. Companies should promote tools that workers are used to using in their private life (Twitter, Gmail, Facebook). This way no new habits need to be learned.

Positive constraints include:

- Uniqueness of message. The sensitivity or confidentiality of the message may justify the use of a tool other than the one recommended by the CCTS.

- Preferences of senders and receivers. Personal preference and hierarchy can alter tool decision. E.g. no instant messages for executives.
- Difference in culture. In some cultures even IM can be considered formal.

The CCTS-model is a detailed version of the collaboration and content model template (Figure 5).

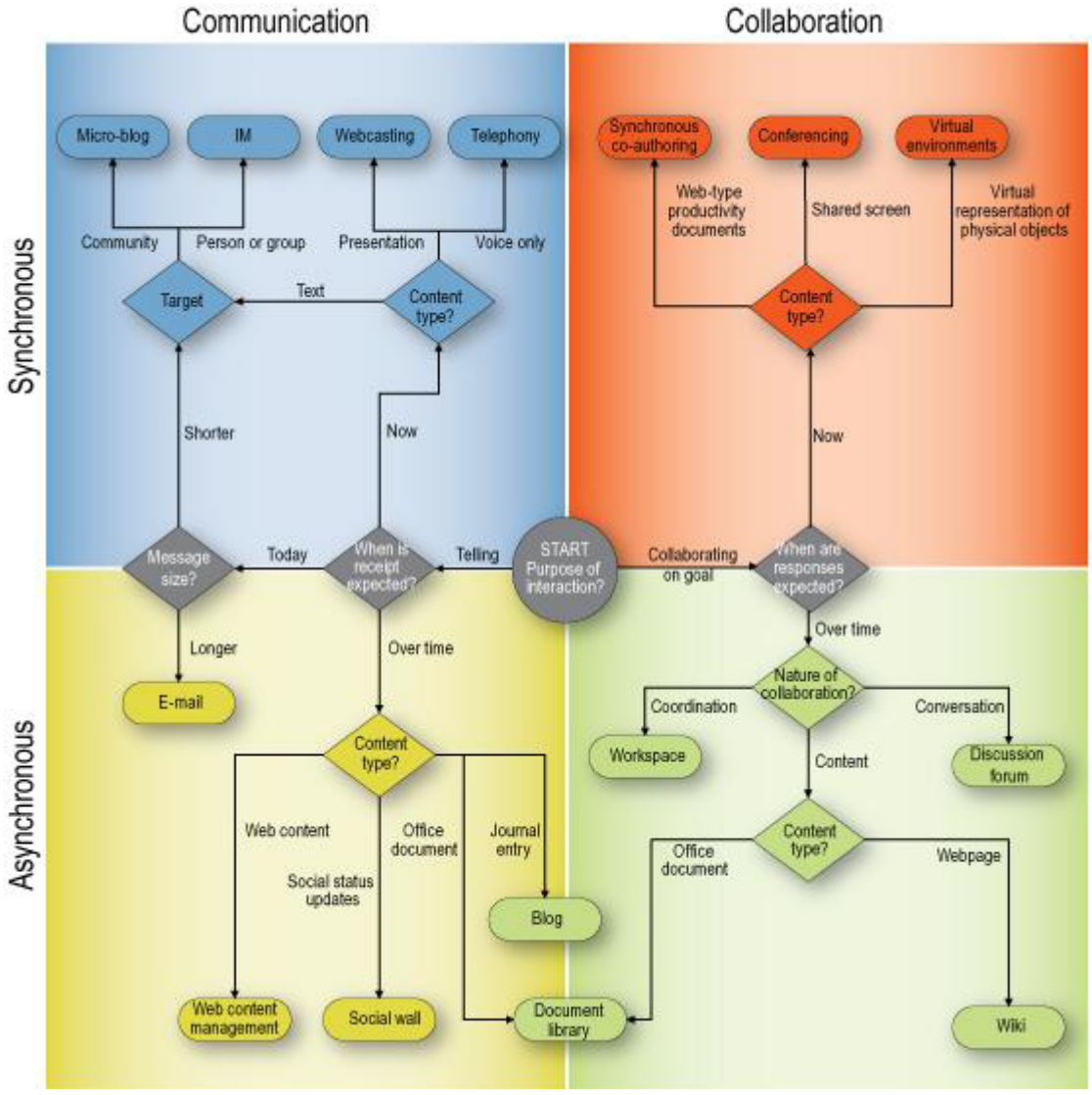

Figure 5. CCTS, Communication, Collaboration and Content Model (Roth 2010).

When it's decided that CCTS will be used, the decision maker starts the process from the circle in the middle of the CCTS-figure (Figure 5). First of it should be decided whether the meaning of the interaction is to collaborate on a goal or to exchange mes-

sages. This decides if the tool is for communication or collaboration. The distinction may seem trivial, but according to Roth problems will occur when communication channels are used to collaborate. An example of this would be the use of email as a collaboration tool; document versions get out of sync, new personnel aren't in the recipient list, storage quotas exceed etc. In this example email, a communication tool was wrongly used as a collaboration tool, but it can go the other way around. For example posting a new organisational dress code on a discussion board will surely receive unnecessary comments. According to CCTS a purpose of interaction can be broken down into "telling" and "collaborating on a goal". (Roth 2010).

The next decision point in CCTS is time criticality. Is real-time (synchronous) communication or collaboration necessary? Transmission not happening "now" means asynchronous communication or collaboration. this means when is a receipt expected? Now, today or over time? By "over time" the sender is not waiting for a fast response from the recipient. The distinction "Today" is made because the difference between the few seconds of "now" to multiple days of "over time" is so broad. For example a reply to an email is often expected "today" but not "now".

Now the interaction is divided into four fields:

- Synchronous collaboration decisions
- Synchronous communication decisions
- Asynchronous communication decisions
- Asynchronous collaboration decisions

Synchronous collaboration decisions depend on content type. If the content is web-type productivity documents, then synchronous co-authoring tools are the tool of choice. Shared screens (often web conferencing) are the most common way of synchronous collaboration. Web conferencing is very generalized and no need for application logic is needed. Virtual presentations of physical objects is a way of collaborating in a shared environment that retains information about each object in the environment and includes logic regarding the manipulation of these objects. Second Life is an example of a commercial application of this kind. Having a closed environment allows for effective and secure learning and collaboration. Virtual presentations can be highly immersive if exe-

cuted properly and they enable cost cuts when instead of traveling, a training can be done locally. (Roth 2010).

Synchronous communication decision provides a real-time channel where a one-way or undirected conversation can take place. Applications for synchronous communication include: microblogs, instant messaging, webcasting and telephony. The timeframe for synchronous communication is “now” or, despite the fact that real time communication is possible, “today”. For example replies to microblog posts don’t happen right away, but it doesn’t take recipients days to reply either, thus the division to “today”. (Roth 2010).

Asynchronous communication decision is used for “fire and forget” messages, where fast replies aren’t expected. Tools for this type of communication include: email, web content management, social network sites (social walls), personal sites (Sharepoint My-Site), document libraries and blogs. In asynchronous communication tools are divided in two groups based on how fast the reply is expected. The reply timeframe to any asynchronous posting can vary from now to never, but in the actively used tools “today” is a likely option for reply timeframe. The two groups for asynchronous communication are “over time” and “today”. For messages that are meant to be discovered or responded when it suits the recipient (if at all) in the “over time”-group include the following tools. Web content management – designated content owners can edit and that way send a message, or publish static web pages. For example a message from the President on a intra website is an example of this. A social status update, updated office document in a document library or a journal entry are also examples of asynchronous communication in the “over time” response group. Email is in the “today” group, as it is often expected that an email will be replied within the day. Depending on the content a reply can be expected within an hour. (Roth 2010).

Asynchronous collaboration decision is used in cases where a group has a goal with multiple iterations over a timeframe from days to years. Tools for this type of collaboration include workspaces, discussion forums, document libraries and wikis. When choosing the tool, it’s important to identify the type of collaboration that is needed; coordina-

tion or conversation? With coordination workspace tools activities like tasks or processes can be coordinated and workspaces are like intermediaries for group interaction, information sharing and coordination. If the collaboration is related to discussion, then conversation is the nature of the collaboration. In this case discussion groups are the best tool. With this too participants can be managed, the history of the discussion is easy to follow and threads make the discussion easy to follow. Content also dictates what tools to use in asynchronous collaboration. Document libraries are suitable when Office documents are handled. This way teams can work together on documents and post content, have discussions or manage schedules and tasks. If the content is a webpage, then wikis are to preferable tool, as they are lightweight, they include pages and attachments, categorization schemes, named users and other workspace like features (Roth 2010).

2.7 Studied Tools

The tools chosen to this study were the ten most commonly used social collaboration tools in company X. Each tool examined serves a certain unique functionality compared to another tool, at least for some of the interviewed employees.

2.7.1 Instant Messaging (IM)

Instant messaging is real-time, communication by typing between one or more users over the internet (or intranet). The immediate aspect makes IM valuable as there's basically no lag after pressing enter. Most of the solutions use a client-server architecture to enable message exchange. In literature corporate instant messaging is sometimes referred to as "EIM" (Enterprise Instant Messaging) or "CIM" (Corporate Instant Messaging). Typically the IM-window is a small notification center on the computer's desktop (Figure 6).

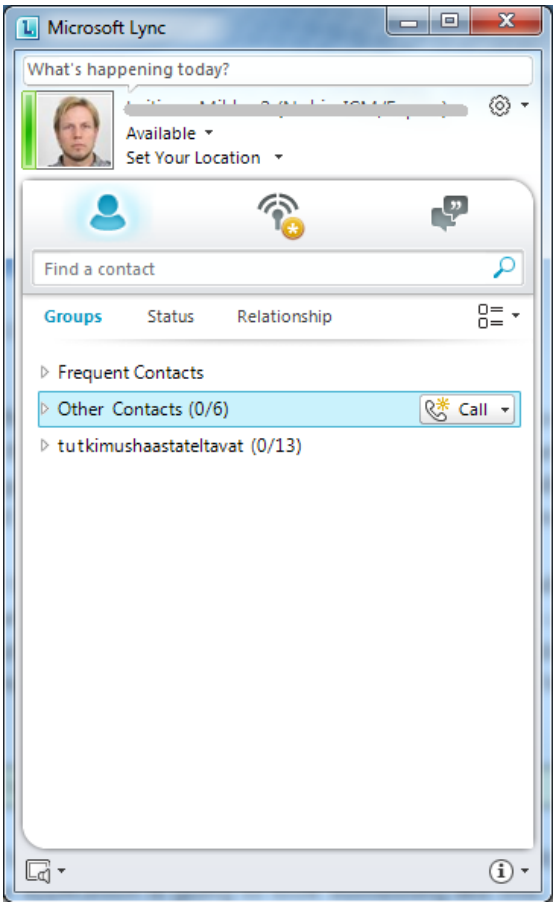

Figure 6. Instant message-program window.

Presence is a significant part of IM applications; it is the status of the user, informing other users whether the user is available, busy, away, and so on. In the latest other social collaboration tools presence has been applied as a feature. Presence can today be considered its' own technology; it's a function that provides real-time information (automated or created by user) about the user's activity, availability, and location.

In the 3C diagram (Communication, Collaboration and Content Model Diagram) IM sits in the synchronous communication quarter. It has been said that IM is the synchronous version of the asynchronous email.

IM functionality consists of core features and extensions. Core features include: ability share URLs, friend lists / contact groupings, corporate directory integration, emoticons, file transfer, group chat, message archive, offline messages, peer-to-peer text messaging, personalization, presence, rich-text support, user information/contact card.

IM extensions include: audio chat/VoIP, call management, chat rooms, click-to-call/VoIP, integration to applications, mobile capabilities, screen sharing, SMS to IM or IM to SMS possibility, streaming content, video chat, and web conferencing integration. Like with many other social collaboration tools, it's hard to assign monetary worth to corporate IM, but identified benefits include:

- Provides new agility through real-time communication.
- Reduces latency of communication transactions.
- Improves coordination.
- Enables rapid response.
- Facilitates globalization by helping employees stay connected across geographic distances.

  (Pray 2009)

2.7.2 E-mail

Electronic mail, email, is a form of exchanging digital messages between computer users; email was first used in the1960s and by the 1970s it was the email we know today. Email operates on the internet. Current email systems are based on a store-and-forward model. Email servers accept, forward, deliver, and store messages. Neither the users nor their computers are required to be online simultaneously; they need to connect only briefly, typically to a mail server, for as long as it takes to send or receive messages. Wikipedia (2016)

Enterprise email is one of the largest and mission-critical applications to a corporation especially when coupled with collaborative workspaces, social networking sites, XML feeds, blogs or wikis. Today corporate email services can be cloud based where data is saved in a virtual hard drive rented from a large provider (e.g. Amazon Cloud Services), or emails can be stored in to a server owned by the company.

When viewed from a messaging perspective, email is still the best solution for what it was built to do; sending text-based messages one point to another, but other tools have

emerged such as instant messaging, social software, blogs, and collaborative workspaces. Nevertheless email's still holds a stern position as means of communication when sending personal longer messages that are expected to be read and possibly replied the same day; asynchronous communication (Hobert 2008).

2.7.3 Web Conferencing

Web conferencing shares content over the internet through an online meeting or presentation. All attendees access the conference through a desktop application. Most web conferences utilize a browser-based web application that enables attendees to click on a link to participate in the conference.

Web conferences offer value in many ways that include:

- *Broadcasting information*. Demonstrations, presentations, webinars, and internal or external broadcast presentations.
- *Support and training*. Helpdesks, technical support, training or virtual classrooms.
- *Collaborative work*. Co-creating content, small group meetings, telecommuting.
- *Process-specific activities.* E.g. emergency response, crisis management.

Web conferencing is not useful in the case of creating trust (physical presence needed for this), when content needs to be created (same synergy not attained as people in the same room), or when participants are close by each other (obvious, rather gather in the same room).

Most visible hard cost web conferencing can save is travel expenses. But it's not always wise to skip face-to-face meetings. Web conferencing will only work with a limited amount of attendees. Web conferencing is obviously also the environmentally friendly option (Pray 2009).

2.7.4 Blogging

A blog (a truncation of the expression weblog) is a discussion or site published on the internet consisting of entries, "posts", typically displayed in reverse chronological order (the most recent post appears first). Until 2009, blogs were usually the work of a single individual. More recently, "multi-author blogs" (MABs) have developed, with posts written by large numbers of authors and professionally edited. MABs from newspapers, other media outlets, universities, think tanks, advocacy groups, and similar institutions account for an increasing quantity of blog traffic. Wikipedia (2016).

Huh et.al. (2007) study shows that corporate blogging is a means of facilitating access to tacit knowledge and resources vetted by experts. Most importantly it contributes to emergence of collaboration across a broad range of communities within an enterprise. Huh et.al. further found four reasons how corporate blogging supports work:

1. It works as a medium for a variety of employees to collaborate and give reciprocal feedback.
2. A place to share expertise and acquire tacit knowledge.
3. Used to share personal stories and opinions that help people to know more about each other; can increase social interaction and collaboration.
4. Used to share aggregated information from external sources by writers who are experts in the area.

Baehr & Alex-Brown (2010) Found in their study that a departmental blog can help improve knowledge-sharing activities that promote increased shared knowledge among the team, a sense of group belonging and cohesiveness, and a creation of informal and formal ties between team members. According to literature, these findings relate directly to beneficial factors that are building blocks of social capital for the individual and the group. In the study group case, the blog evolved into a valued and trusted forum for disseminating and receiving knowledge, both tacit and explicit, by employees and managers alike.

2.7.5 Microblogging

Microblogging can be compared to writing a blogpost, but in the case of microblogging the message simply shorter. A microblog post appears on the user's stream of microblogs. Simplest example of microblogging is the web service Twitter. A microblog post in Twitter is a tweet. "Following" a user in twitter is possible by subscribing to their stream of tweets. By subscribing to the other user's stream the subscriber will receive the other user's posting in their own stream of tweets. A tweet can be addressed to another user by using the "@"-sign. Messages can be created from Twitter's webpage, but there is an array of third party software and mobile applications that can be used as Twitter-clients. Opinions on microblogging's success vary; some studies show it's the simplicity of the messages (e.g. Passant et al. 2008, Netskills 2010, Zhao & Rosson 2009), where others say Twitter presents a huge amount of information with no meaning (e.g. Pear Analytics 2009).

Twitter has made microblogging extremely popular. According to Riemer & Richter (2010) its' success has made corporate executives curious whether a similar service would be useful in their intranets for sharing information and communication among employees. Others have warned that bringing social media inside a company might end up promoting negative procrastination from the company's point of view. According to Naaman et al. (2010) most types of communication is user-centric. Users post about themselves (41%), random thoughts (25%), voice opinions (24%). Naaman and the authors describe this as "Me- forming" behavior as the posts are mostly about the user. Only 21% of the posts were considered to serve other users' needs, i.e. making others aware of some kind information source they might be interested in.

In Riemer & Richter's (2010) study about communication patterns in a team they monitored a team that had adopted corporate microblogging. By adding genre analysis they found that corporate blogging is very different from public microblogging. They say that in corporate context team members communicate with others in mind; their use of microblogging consists of subjects described in figure 7:

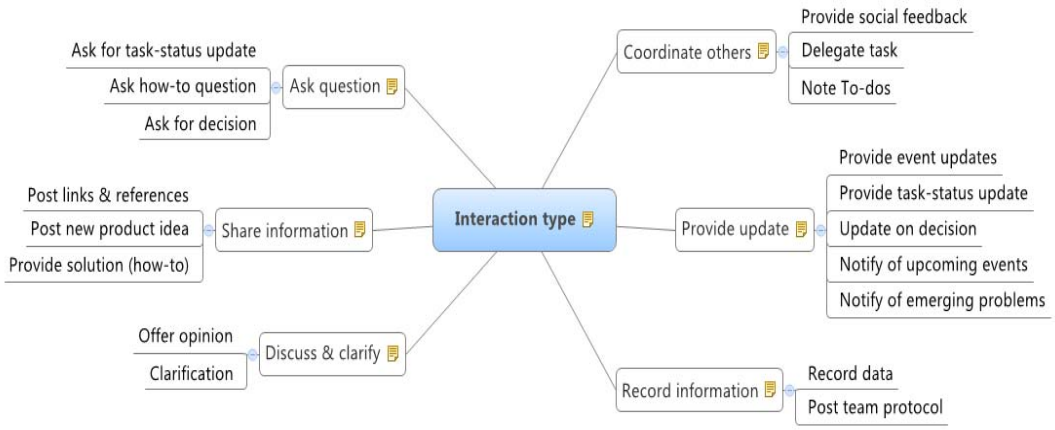

Figure 7. types of microblog posts in corporate context.

Riemer & Richter (2010) found six types of microblogging posts;

- Asking a question
- Sharing information
- Discussing & clarifying
- Coordinating others
- Providing updates
- Recording information

Questions asked were related to status updates, decisions and asking for help. Posts sharing information consists of posting references and links, ideas about new products and providing solutions. Microblog posts that discuss and clarify subjects provide opinions on matters and clarify them. One type of corporate microblogging posts is coordinating others. These types of posts consist of providing social feedback, delegating tasks and notify the team on to-do –lists. Providing updates was a significant type of microblogging post. Update notifying can be related to events, task-statuses, upcoming events or emerging problems. Microblogging was also used to record information, whether it was to record data or to post a team protocol.

Riemer & Richter (2010) say the difference with public on corporate microblogging is likely that in a corporate environment users share a common context as they belong to the same organisation and team. Therefore posters are highly aware of the knowledge of the recipients and their needs. Private microblogging on the other hand is a social activity where people build a personal online identity. Riemer & Richer (2010) argue that corporate executives should trust employees in utilizing microblogging as a tool in their work as the use of microblogging is highly context dependent and the use of it in a corporate context is likely to prove useful. They also recommend the use of microblogging not to be too defined; let employees utilize it in contexts they see it useful.

2.7.6 Wikis

A wiki as a web application which allows collaborative modification, extension, or deletion of its content and structure. Usually the text is simple markup language also known as “wiki markup” or a rich-text editor. Unlike blogs, content is created usually without an owner. The structure of a Wiki-page usually shapes itself through the needs of the users (Wikipedia, 2016). Ward Cunningham, the developer of the first wiki software, WikiWikiWeb, originally described it as "the simplest online database that could possibly work".

Information Week website describes that wikis are designed to facilitate the exchange of information within and between teams. The advantage they have comes from the fact that content can be updated without any real lag, administrative effort, or need for distribution; users simply visit and update a common Web site.

Wikis can handle all types of business data, such as spreadsheets, Word documents, PowerPoint slides - anything that can be displayed in a browser. Email or instant messaging can be embedded to a wiki. PHP-based wikis can directly interface with company databases to bring in audio and picture files. The functionality of a wiki is basically just a matter of programming.

Cannell (Burton Group, 2010) defines a wiki is a collection of hyperlinked collaborative web pages utilized in enterprises for teamwork. An enterprise wiki platform facilitates the creation, organisation and using of wikis. Wiki pages work like standard web pages technically, but rather than just transfer data through the web, wiki content can be modi-

fied from a web browser, no additional software is needed. Wiki pages are easily associated with each other, and can also be organized hierarchically if needed.

Typical features for a wiki page are:

- Multi-user authoring – many people can edit, but defined people.
- Rich text page editing – Text can be edited using a simple in-browser editor
- Wikitext – A non-standardized markup language with the intention of being simpler than HTML, but still providing rich text page elements (e.g. lists, italics, bold). Was also used to identify sections in wiki pages.
- Versioning – history of versions is saved.
- Commenting – part of a wiki page as a section
- Attachments – files can be uploaded to a wiki page.

There are templates for wiki pages. Hyperlinking is elastic between named pages (meaning wiki-links are not based on standard web URL-addresses). Wikis are often organized in to separate spaces in an organisation's network in order to organize them better. Wiki pages often have tags to help categorize them.

2.7.7 Shared Workspaces

In it's simplest form a collaborative workspace or shared workspace is online environment in which all the participants in different locations can access and interact with each other just as inside a single entity. Wikipedia (2016). Communication in shared workspaces is synchronous (e.g. screen sharing, chat, shared documents with real time editing) and asynchronous (email, shared file repositories). Especially with tech savvy companies that operate on a global scale, there is a growing class of software to enable IT professionals to overcome space and time differentials with collaborative workspaces.

Shared workspaces are commonly used in situations where different organisations do not share a common security infrastructure and where offline access is important, and amongst teams of knowledge workers, such as consultants who need to work securely on client sites. Shared workspaces are also used as a staging systems for documents in development, where content can be developed before turning the final version in (Wikipedia 2016).

2.7.8 Social network site

A social network site is a website where people can maintain and establish relationship with people who share same interests and activities. Harnessing a social network site to a global company's use is a logical specialization for the standard social network website, Facebook. Cannell (Burton Group, 2011) defines the basic components people can do on a social networking site:

- Define an online profile
- List their connections (friends or colleagues)
- Receive notifications on activities related to connections
- Participate in interpersonal, group, or communal activities

A global company has all the elements needed for a social network site to function. According to Cannell (Burton Group, 2011). Facebook's soaring popularity has encouraged employees, HR groups, line-of-business managers, and C-level executive teams to request an internal version of the popular consumer site, a "corporate Facebook".

According DiMicco et.al (2008) social network sites within an enterprise reveal patterns of usage and behavior that differs significantly from normal social network sites like Facebook. Inside a company social network site employees reach out more to new acquaintances rather than just connect to people they know. Employees also opened up more about their private life in the corporate social network site than with any other corporate collaboration tool. The social network site was found to be a popular tool to spread their ideas to a larger audience.

2.7.9 Personal Site

A corporate personal site is a central location for the employee to view and manage their documents, tasks and personal information. It's also a way to find information about colleagues' areas of expertise and current projects. Microsoft's (2016) My Site is one of these personal sites that is a feature in Microsoft SharePoint. According to Mi-

crosoft My Site provides the user a single location to manage all of the documents, content, and tasks that the users has in the organisation. You can also present content and documents to other people, create your own workspaces, provide information about themselves to other people, and learn about the status of their colleagues.
Another significant feature often related to corporate personal sites displaying list of the employee's colleagues, and an organisation hierarchy diagram to show the employee's position within their immediate team. Other users visiting the employee's personal site can see common skills and colleagues they have with the employee and other shared memberships within the organisation Microsoft (2016).

2.7.10 Video Blogs (Corporate Video)

Video blogs refer to corporate videos in the frame of this study. It is used as an asynchronous means of communication to reach a desired group of people (often as many as possible within the organisation). Roth, C. (2010).
A corporate video production refers to an audio-visual communications material, that can be recorded or live in the case of this organisation. Usually a corporate video has a specific purpose, and a limited or targeted audience watches it. The footage can be anything from product, service or company promotional videos, training videos and information videos.
The production of corporate videos is the responsibility of the marketing or communications manager. Examples of corporate video include staff trainings, safety related videos, promo/brand footage, and videos related to the organisation's financial statements.
The duration and scale of a corporate video production varies greatly. Some videos may use only minimal crew and basic equipment, while large-scale corporate videos may have similar (or often higher) budgets and level of production than broadcast television footage or a TV commercial (Wikipedia, 2016).

2.8 Stakeholder Aspect of Social Collaboration Tools

Opening up decision making to stakeholders previously not taking part in the process is a way to create novel ideas. Chakravorti (2010) discusses the possibilities embedded with open innovation and collaborating with external stakeholders: the roles of external participants could change. Consumers, uninvolved third parties, and employees can become co-creators. A networking platform can connect multiple parties. This offers an opportunity for different stakeholders to engage in a dialogue, which wasn't possible earlier. Chakravorti further explains five properties to create effective social networks among stakeholders. These properties include:

- *Participation incentive compatibility* - the chosen method of executing the platform must tempt people to participate in the platform. More users more value.
- *Diversity and creativity* – the chosen method should trigger a variety of proposals from different stakeholders.
- *Optimality of decision rule* – The decision-making process must be efficient and create value for the company without obstructing the incentive properties of the platform.
- *Non-manipulability* – Ways to detect and manage potential manipulation, abuse or bias must exist.
- *Preservation of competitiveness* - The method must not cause to company to lose its' competitive advantage or intellectual property assets.

Furthermore utilizing the ideas provided by the external stakeholders need decisions, that process also has to be decided whether to keep it centralized to the organisation, or have it dispersed and done with all stakeholders. Each way has its' pros and cons that have to be considered in each case Chakravorti (2010).

2.9 Challenges and Critical Success Factors for Social Collaboration Tools

Grudin (1994b) sit. Munkwold (2003) examines challenges in developing and implementing collaboration technologies are discussed. Grudin (1994b) states eight challenges:

1. *Disparity in work and benefit* - Collaboration tools, or groupware as Grudin (1994b) calls them, often require extra work from employees using them. This leads to the employees not perceiving the benefits of the tools.
2. *Critical mass and "prisoner's dilemma" problems* - There is a chance not enough users start using the tool, and thus it doesn't reach it's full potential of usefulness, or users just simply don't see it useful to start with.
3. *Disruption of social processes* - A collaboration tool can lead to activities that violate existing social taboos, or threatens political structures and thus is left unutilized.
4. *Exception handling* – Group activities include a variety of exceptional behavior, and the collaboration tool may not be able to take this behavior into account.
5. *Unobtrusive accessibility* – Some features in the collaboration tools that support group processes may not be used so often and there's a risk they integrate properly with the more heavily used features.
6. *Difficulty of evaluation* – It is extremely hard to do meaningful analysis on social collaboration tools in order to obtain generalizable analysis on the tools.
7. *Failure of initiation* – Intuition has been found not to work when developing multi-user application environments. This results in bad management decisions and errors in the design process.

8. *The adoption process* – Implementation of social collaboration tools is more sensitive than with other product development.

According to Grudin (1994b) the first five challenges require knowledge of the workplace of the intended users, and the final three challenges require changes in the devel-

opment process. The most crucial challenge seems to be the gap between tool developers and users: benefits from the tools are not perceived the same way. Grudin (1994b) also states critical mass as a significant challenge. With social collaboration tools critical mass requires universal access to the tools. If universal access isn't reached, it reduces the benefits for the individual user. In this way Grudin (1994b) states that communication tools are different from other technological innovations; the interdependence between early and late adopters is reciprocal rather than sequential. Early adopters don't get any benefits before late adopters as critical mass is required for the tool to flourish. Lastly Grudin (1994b) argues that those responsible for developing the collaboration tools need to be sensitive additional problems and complexity that arise when creating software for supporting groups compared to single-user software. (Grudin, 1994b).

2.10 Summary of the Theoretical Frameworks

Theoretical frameworks in this paper consisted of examining modern collaboration related to employees not being face to face. Vartiainen et al. (2007) examines the dynamics of distributed work. Altamirano (2011) proposes factors to make collaboration work on a global scale.

Employee networks as a part of collaboration within the organisation and between organisations are becoming more inherent (Vartiainen et al., 2007). Jolink & Dankbaar (2010) list factors to positively influence employee networking between organisations. Cross et al. (2010) propose steps to identify functions or activities where connectivity is most needed. Cross et al. (2010) further examine characteristics that make employee networks work.

Significant employee network instances examined in this thesis is are communities of practice (CoP). Wenger (2004) defines CoPs as groups of people who share a passion for something that they know how to do, and interact regularly order to learn how to do it better. Ziegler (2009) further stated that communities of practice provide and opportunity for the participant for growing their knowledge equity by absorbing knowledge from other group members. Knowledge is treated like a "living asset" in CoPs that has

to be nourished (Ziegler, 2009). A stakeholder approach for decision-making regarding collaboration was introduced by Chakravorti (2010).

Lastly a theory regarding choosing the right tool for communicating was introduced by Roth (2010) called CCTS (The communication and collaboration tool selector). The selector has two axis: the Y-axis values are asynchronous (not live) a synchronous (real-time, immediate). The X-axis values are communication (transmitting information alone) and collaboration (information flow with shared, pre-arranged goals). This selector divides the communication tools (including the ones in this study) into four categories:

- Synchronous collaboration decisions
- Synchronous communication decisions
- Asynchronous communication decisions
- Asynchronous collaboration decisions.

(Roth, 2010)

3 RESEARCH QUESTIONS AND METHODS

3.1 Research Questions

The aim of this study was to find company X's employees' user preferences on current social collaboration tools as well as finding out what they think is good in the current selection of tools, and what should be made better. Eight of the most essential social collaboration tools were chosen to be studied and how they could be made better. The first research question's objective was to find out how actively people use the tools examined.

The object of the interviews was not just to map the use of social collaboration tools in an organisation, but also to find answers to a questions related to the use of them in the organisation. These questions regarding the big picture of social collaboration tools include:

- What kind of social collaboration tools are the most useful, and for which situation in an organisation? Are there certain tools that stand out above the others in the majority of the interviews?

- What type of social collaboration tools should be promoted more, or disposed of? Are there tools that people feel are not utilized enough or promoted enough (or too much) to arise to the awareness of the majority?

- Are there any type of collaboration tools missing from the quiver of the organisation that would be useful to have? What type of collaboration tools would this / these be?

3.2 Case Organisation

To carry out my study I joined a team within the organisation's IT-department that was responsible for the organisation's collaboration platforms. The mission of this team was to develop and maintain the social collaboration tools that were used in the organisation. Maintaining the tools meant making sure the tools were functioning correctly. Development meant adding features to the tools, monitoring which tools are actively used and which ones aren't and possibly adding or deleting tools available for the employees. This activity was no mundane task, as these tools were at the use of the organisation's 60 000 employees all around the world. The team was international, consisting of ten to twenty people.

The customers of this team were the employees of the organisation, and to some extent external stakeholders. All employees had access to the eight social collaboration tools available in the company and reviewed in this study. External stakeholders had partial access.

The company didn't have precisely controlled orientation program regarding the social collaboration tools as I learned from the interviews I did. All employees weren't aware of all the tools that were available for communicating with colleagues.

In order to get in depth information about the tools, I also interviewed the tool-owners as pre-interviews before the actual interviews from which I drew conclusions to my research questions.

The employees had eight social collaboration tools at their use which were:

- Socialcast - A Facebook mimic-service with subjects revolving around the organisation's matters.
- Lync - an internal chat program.
- MySite - The employee's own personal profile page where current work projects are stated.
- Bloghub - A blog portal. Useful when specific deep knowledge is shared.
- Videohub - The organisation shared information for masses of employees with the use of videos displayed on this portal.
- Workspaces - A centered repository portal.
- Wiki - Web pages are used as portals for teams working on projects. Here information about the project is shared and links to latest work.

- Sphere - the organisation's innovation platform where employees could suggest new ideas for the company, anything from new products to new procedures.

3.3 Methods

3.3.1 Case Study method

The goal for this study is to perform an in-depth analysis on employees' social collaboration tool user preferences in a global corporation that operates in the mobile phone industry. The case study method is chosen (Creswell, 1997) because this type of research excels at giving us an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. In the case of this study quantitative data doesn't give us as much understanding about the subject as compared to interviews within real-life context. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships (Yin, 1984). This is also suitable for this study as resources for research are limited.

According to Creswell (1997) the amount of cases investigated affects how detailed data can be gathered. If the amount of cases is small, then more data can be collected compared to a large amount of cases, where the investigation can't be as detailed.

3.3.2 Interviewee profiles and backgrounds

In this study I have interviewed two groups of social collaboration tool users within a technology intensive company X that operates globally in telecommunication. The Interviewee profiles were divided into two groups. There was group of "active users" and a group of "random users". Actives were chosen either because of their role in the company was somehow related social collaboration in the company or according to user statistics. Actives are early adaptors of corporate social collaboration tools and have routines using them daily. Many active users had job descriptions that incorporate the use of the tools examined. Some of them have been in the teams developing the tools, or in think tanks discussing what type of collaboration tools are needed in the future.

Random interviewees were chosen, well randomly. There was some criteria choosing the random users – they had to be from different parts of the organisation, and from different parts of the world. Their level of social collaboration tool use is expected to be around the company average.

In addition to the actual research interviews, I also interviewed the owners of the social collaboration tools examined in this study. These interviews were not structured and I let the tool owner say what they thought was apparent about their tool, and which way they saw the tool going in the future. These interviews gave an insight on what is critical about each tool, and partially helped me form the actual interview questions.

3.3.3 Semi-structured Interviews

In this study interviews are used to collect data. The study is qualitative research by nature. The aim is to understand a phenomenon. This means finding the meaning or significance of the phenomenon, and finding a thorough and deep understanding of the phenomenon. This means often giving room for interviewee feelings and opinions about the phenomenon (Eskola & Suoranta, 1998). In this study the phenomenon is social collaboration tool use in an organisation and what elements affect it.

Interviews were performed in a 45-minute instant messaging session. The decision to perform the interviews through chat was because it was considered that recording a conversation would have made people less interested in participating in the interviews and answers in an online questionnaire were suspected to be insufficient according to previous experiences. The interview questions are contained in Appendix A.

Because the interviewees were very different types of people, the interviews were semi-structured. Compared to a structured interview, where answer options are fixed, in semi-structured interviews the questions are fixed, but answers can are the interviewees own thoughts (Eskola & Suoranta, 1998). Although the same questions were used, some of them were at times modified slightly in order to get the most out of the interviews. The semi-structured form allowed the interviews to go significantly more into detail than if the questions would have been presented identically to everyone. Follow-up questions were used to gather more detailed data, and those questions of course depended on the interviewees' answers.

All interviewees had the same twelve questions. The questions were related to user Company X's social collaboration tool user preferences and experiences. There were also questions about how to develop the tools further.

3.4 Analyzing Methods

The conducted interviews were analyzed with the use of thematic and typological qualitative analysis. Thematic analysis emphasizes pinpointing, examining, and recording patterns or themes within the data (Braun & Clarke, 2006). Themes are patterns within the data sets that are essential to the description of a phenomenon and are associated to a specific research question (Kellehear & Gliksman, 1997).

According to Eskola & Suoranta (1998) thematic analysis is usually the first approach to qualitative data. Themes related to the research problem can be brought up with thematic analysis. This way it is possible to compare the occurrence of different themes in the data, which is the interviews in this case. In thematic analysis it is evident to locate and dissect the parts from the transcripted interviews that are relevant to the research questions. Themes can be demonstrated in thematic analysis through quotes from the interviews that exemplify the themes manifested in the interviews. Themes should reflect relation to theories presented in the study (Eskola & Suoranta, 1998).

Qualitative data is in most cases presented thematically. The analysis can be taken further by building most common types from the answers. One can also create a type from a certain group within the answers. These types condense and typify the themes and can describe the data thoroughly and interestingly. It's also possible to look for unconventional types; they don't have to present the most common type. Analyzing an unconventional type pushes the researcher to question and develop his or her assumptions (Eskola & Suoranta, 1998).

There are at least three types of ways to create types in typological analysis (Eskola & Suoranta, 1998):

1. Authentic – A type that includes one answer as an example of a larger group.
2. Combined – The most common type possible. Includes answers that are a part of most or all cases.

3. The most thorough possible type – Combines type of answers where one answer might have only occurred once, but combining the answer is internally logical, it is possible that this type would occur, even though not likely.

The themes for the interviews were the following:

- Need for social collaboration tools
- Usability of the social collaboration tools
- Amount of the social collaboration tools
- Social collaboration tools & employee networks

The analysis was done by studying the transcripted interviews. Evaluating the responses within the frame of the themes helped identify topical conclusions.

4 RESULTS

I will present the findings of my research with the use of themes that have emerged through my academic research and the interviews. I will first examine the answers given by active users by comparing their answers to the themes that are established here. After this I will examine the answers given by random users and compare them to the themes. In the cross-case analysis I will compare the answers of both groups related to the same themes.

4.1 Active Users

4.1.1 Need for Social Collaboration Tools

Active social collaboration users in the company consider the tools a foregone conclusion. They don't think the tools bring any added value to their work since they are so used to them. They are a part of the basic quiver of working tools. Most of them use all the tools. One active users says:

"It's all about connecting people and the knowledge they have"
(Hanwell, M.)

There is a common solicitude within the actives that everyone in the company has to be adapted to use the tools. It's a common understanding that efficient use of these tools plays a significant role in getting the organisation to function optimally.
Majority of actives spend more than an hour using social collaboration tools in a day. The most popular tool is Lync, which is a chat program that operates in a small window on the computer desktop. Socialcast is the second most popular tool. In addition to these two most popular tools, most of the actives found the rest of the tools shorthanded in one way or another.
An interesting observation was that event though these users weren't the tool owners; almost all of them felt worried about the user activity related to these tools. It seemed

that they realized that the amount of users of a certain collaboration tool is almost directly proportional the usefulness of the tool.

A typical active collaboration tool user is active in Socialcast, creates ties to people he or she hasn't known before. Motivation for creating these weak ties is a shared interest, that has been discussed using the tools, and it has brought the users together. The active user uses Lync to communicate with team colleagues about matters that need a quick answer.

Other tools are more related to the nature of the work the employee does. Some don't follow blogs at all that are useful for others for in-depth information about a subject. Also the dynamics of the employee's team dictate the use of some tools. The person might not ever use wiki pages; instead documents are restored in Workspaces.

4.1.2 Usability of Tools

Active users generally had complaints about the usability of most tools. The most common complaint was that the tools are not integrated together properly.

"So the work being done, conversations made, work shared should be only in that one place ideally, and it should be connected via our user profile – MySite."
(Kwan, M.)

"Mostly the tools are way too fragmented"
(Loughney, J.)

Other tool getting a lot of critique was Microsoft's Sharepoint based Workspaces. It was considered uninviting and cryptic:

"Workspaces seems to be a document storage tool of choice, but it's very hard to navigate, awkward to upload documents and search for them."
(Loughney, J.)

Active users found the randomly picked users way of using Socialcast problematic as randomly picked users were using its' micro-blogging platform to post blog size posts

about subjects. Even though this was mostly the problem with the randomly picked users, one active said:

"I do think a multitude of tools, with no clear guidance or consistency as to how we use them is counterproductive."
(Christakis, E.)

Generally active users found more faults with the tools than the randomly picked users, but they were also able to adapt and learn to live with those problems without abandoning the tool. Most active users thought that Lync was the most usable as a product, even though it had a few bugs too. Socialcast, even though criticized, was also said to be very useful; many active users were also happy with it. Most actives were missing mobile access to the tools:

"We are missing mobile access to most of the tools"
(Vilkamo, T.)

Some users had deeper concerns about the usefulness of the tools:

"Socialcast would be better if we moved from commentary to action within the dialog."
(Hanwell, M.)

"Initiative is missing in Socialcast so to speak"
(Christakis, E.)

Same difficulties were mentioned with Sphere, the idea generation tool. A few users complained the ideas posted went to oblivion, no information was ever returned if an idea was further utilized by the organisation. That discourages people from entering their ideas to the system.

Generally an active user would utilize most social collaboration tools. Even though the tools had their faults, the actives were able to live with those faults – it wouldn't drive them away from using the tools. Some tools like wikis and Workspaces overlap to some extent, and employees choose to use one of them based on personal preferences or as a decision by the employees work team.

4.1.3 Amount of Tools

None of the active users wanted more tools, but a Dropbox type tool missing was mentioned in a few interviews. But in addition to missing a cloud based data repository, no other tool was said to be lacking. No active user said there aren't enough tools. It was more like the opposite, one employee said:

"I wouldn't add any more tools to the portfolio, but as said before I would try to integrate them better."
(Hanwell, M.)

A typical active user said he or she would want to integrate the tools to each other. Bloghub was proposed to be linked to Socialcast, same with Videohub. An active user didn't necessarily use all the tools available in the organisation, but was aware of all the tools.

4.1.4 Social Collaboration Tools & Employee Networks

Within the active users there were employees who had drastically expanded the network of people they interact with, but there were also few active users who preferred interacting face to face with people and hadn't expanded their network significantly. One employee's answer on how social collaboration tools have affected his network reflects the majority's situation:

"My network has grown. I've posted relevant content to Socialcast, and have gotten new contacts thanks to it. There's more discussion in the isles face to face thanks to Socialcast. The attitude is totally different when meeting someone for the first time for example in a meeting, if you've already communicated with the person in Socialcast. It's interdisciplinary and inter-organisational."
(Wihuri, P.)

A commonly mentioned general advantage of the expanded network was that skills are easier to reach out to. Many actives said they've met people they never would have without the collaboration tools. One person said:

"I've found also many interesting benchmarks and best practices."
(Bovellan, A.)

Typically active users have had their network expand thanks to the studied social collaboration tools. An active user isn't shy to ask for help from his or her network, they see clearly the benefits of the wide knowledge available in their network and happily utilize it.

4.2 Random Users

4.2.1 Need for Social Collaboration Tools

Randomly picked interviewees' responses on the need for social collaboration tools varied radically. Some employees barely used any of the tools and others extremely actively. One interviewee had very critical thoughts about the social collaboration tools:

"It's clear – people who have no meaning in their jobs, seek comfort and relate to people there. People that have meaning in their busy jobs, can not find any use for it (or relatively useful)"
(Gallar, E.)

One employee said Lync had made communication significantly faster in her work. You can reach a person when when they're in a meeting and can't answer the phone. Lync also reduces email. Workspaces help store files in a centered place for everyone to access. One employee said the tools are very automated and self help orientated, but if the organisation really wants people to use them more, then there has to be someone doing more to drive the adoption of the tools. One interviewee saw the tools as not so useful:

"I think there is too much reliance on tools like these… Any tool that facilitates people not working together sitting by each other is counterproductive."
(Bartleson, J.)

Still, many users felt there was a need for certain features that were missing from the tools available:

"I mean there's always things to improve.. with us f.e. a Dropbox type of application and that joint editing…"
(Mcdonald, T.)

"Something like Google Docs. Workspaces was supposed to be something like it, but it's not."
(Random interviewee #1)

In general the randomly picked user can have a very varied opinions on the tools. Some use them constantly, while others use them as little they can. The ones, who are skeptical about the tools, don't see that work can be done as efficiently with the tools compared to traditional ways of working.

4.2.2 Usability of Tools

Randomly picked users feelings about the usability of the tools also varied a lot. While some were fairly oblivious to the tools, others had fairly strong opinions. A few randomly picked users seemed to be non-active users of the tools due to the tools' usability issues:

"Workspaces / Sharepoint is needed, but not usable…Very generic, important functions inside pulldowns that should be at a bigger role visually somehow."
(Gallar, E.)

Concrete improvement suggestions were made even to the most popular tool:

"Supplier side stakeholders should be included in Lync"

(Zhao, X-M)

With the random group there were some that were extremely tech-savvy and had a lot to say about the tools:

"Socialcast – sometimes it freaks out when you add photos to the system. And then old threads come to the top, if someone +1:s them. In long threads it's impossible to remember how far you've read the comments, when Socialcast opens up the whole thread..Slow." (Random interviewee #1)
"Socialcast could have project pages"
(Mcdonald, M.)

"I think an improvement would be to have a very specific focus for a tool, and make it relevant that way… If the need is clear, then the way to find an fulfill it is also clear."
(Nas, J.)

With randomly chosen users the turnover of the tools was a factor that a few employees felt was disturbing their work:

"The most irritating thing is that we keep changing the tools we use."
(Frey, M.)

Generally a randomly picked user might have had antipathy towards tools that weren't easy to use. They would not use a tool that wasn't easy to use if they had the choice.

4.2.3 Amount of Tools

The randomly picked users were generally satisfied with the amount of tools; some thought there was too many of them. They weren't all aware of all the tools available in the organisation. One person said she logged into the social networking site the first time in the beginning of our interview.

"We have everything we need"
(Jokela, J.)

"Bugs me that there's so many of them that I can't keep up with all of them"
(Random interviewee #1)

A typical randomly picked user felt there was enough tools, or too many. He or she probably didn't use all the social collaboration tools available in the organisation. The reason might have been that they didn't know about the tool, or that it was too complicated to use. A random user also wouldn't use a social collaboration tool unless its' benefits would be straightforward or if it wasn't required to be used in their team.

4.2.4 Social Collaboration Tools & Employee Networks

Most interviewees had their employee network expand thanks to social collaboration tools. There were a few randomly chosen users that said the tools hadn't affected their network. A few interviewees said having used the social collaboration tools with a person they didn't know before made it significantly easier to talk with them the first time.

The tools help maintain and strengthen the real life network, more than just making new connections. On the other hand, I have met people who I've only interacted with on Socialcast and Lync before, immediately the relationship has a stronger starting point offline"
(Mcdonald, T.)

The network can develop an "outside professional matters" -aspect thanks to the tools:

"My network has expanded in some ways. Lync makes it so easy to communicate all over the world. Sometimes I ask how my colleagues in Singapore are doing for no reason, just to socialize."
(Muukkonen, A.)

Clearly the main benefits for randomly chosen users is self development and expanding their professional network:

"I get information and find out what people around me are doing. "Networking"... I like that I sometimes have an answer to other's questions; it's nice to guide people to A (Random interviewee #1)

Reaching all levels of the organisation was an interesting trait of the tools examined:

"Makes us more equal, anyone in Socialcast can ask and get an answer from the CEO." (Random interviewee #1)

4.3 Cross-Case Analysis

4.3.1 Need for Social Collaboration Tools

All active social collaboration tool users felt there is a need for the tools. There was a clear sense that the tools are here to stay and their job as the users of those tools is to think about how the tools could be better.
Some of the randomly chosen users didn't think so highly of the tools. The users whose work involved design, were interestingly not very fond of the tools. They saw Socialcast as something that was disturbing their work.
Even the users who were critical of the tools used in the organisation saw some social collaboration tools useful, but the ones used in the organisation just didn't have the wanted features.
Typically an active user would be fairly content with the tools, maybe would want to fix some features in the tools. A randomly chosen user saw the organisation's tool-palette as more scattered and wasn't possibly aware of all the ways the tools could helpful in his or her day to day work. A random user might not be aware of all the tools. The need for social collaboration tools with the random user had more to do with making them more clearly graspable. The active users were thinking about things in their daily work that could be made easier with the tools.

4.3.2 Usability of Tools

Not surprisingly active users had a lot more to say about the usability of the tools compared to the randomly chosen users, as they were a group that was constantly in contact

with the tools. Once being interviewed active users really scrutinized the tools and found numerous things in the tools that should be done better. Even the most usable tool had its' faults.

That's not to say that randomly chosen users didn't have any criticism over the tools. Some random users didn't find any faults in the tools they used, but when asked further even the non-critical users would come up with something that could be done better.

Active users want to try most tools without needing to see as straightforward benefits from the tools as random users. An active might start to use a tool and see if using it ends up being beneficial, where randomly picked user wants validation for the benefits of the use of the tool before they start using it.

A typical active user was able to use all the tools fairly fluently, but also saw the shortcomings of the tools better.

A typical randomly chosen user had a more limited selection of tools he or she uses. They were fairly well informed about the tools they did actually use. Cause for using fewer tools with the typical random user was either limited introduction to how to use the tools (or even the existence of a tool), or bad usability of the tools.

4.3.3 Amount of Tools

Most active users saw the amount of social collaboration tools problematic. Randomly picked users were mostly satisfied with the amount of tools or oblivious of the amount; they might not even have known how many existed. Some random users did complain it was hard to keep up with all the tools.

The reason active users saw the amount of tools as problematic was not that they offered too many functions, but because they felt the tools had become too scattered. Most of them said they would like to see the tools integrated together. That would mean Videohub videos could be seen in Socialcast, as well as Bloghub posts. This type of integration would bring more users to the individual tools.

A typical active user wanted more functions but integrated into fewer tools. A typical randomly chosen user is oblivious to the amount of the tools, but wants clarity on their use and function.

4.3.4 Social Collaboration Tools & Employee Networks

Both interviewed groups mostly found that social collaboration tools had had a positive effect on their professional network. Both active users and randomly chosen users had interviewees who thought social collaboration tools hadn't expanded their network. All the people who replied their network hadn't expanded said they consider that expanding their network requires face-to-face interaction and experiences with other people.

Many of the active users thought that interacting first through the social collaboration tools were a good enough reason to start communicating with the people face-to-face. This opinion didn't come up as often with the randomly chosen users.

A typical active user was actively expanding his or her professional network with the help of social collaboration tools. A typical randomly chosen user might use the tools in the same ways to some extent, but wouldn't so actively expand his or her network.

5 DISCUSSION AND CONCLUSIONS

5.1 Research Findings

As a remark there were more tools presented in the theory part of this study, as there were tools available in the organisation. This is because some tools in the theory part are very simple tools that don't have an actual social aspect, but they are an integral part of actual social collaboration tools.

First this research set out to examine social collaboration tool usefulness, and situation appropriateness. More specifically the interviewees were asked what kind of social collaboration tools they found most useful, and in which situations within the organisation. Additionally standout tools were observed.

The nature of this organisation involved a lot of complex knowhow and the work was highly technical. In these types of organisations the formation of communities of practice is extremely important. Communities of practice (CoP) are groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn how to do it better. A distinguishing characteristic for CoPs is the focus on knowledge and management of knowledge is placed in the hands of practitioners (Wenger, 2004). Therefore social collaboration tools that contribute to communities of practice are extremely useful to the organisation.

The selection and adaption of an appropriate communication tool in a certain situation was examined in this study. The communication and collaboration tool selector (CCTS) is a tool introduced by Roth (2010). The CCTS divides the messages into four categories: synchronous or asynchronous and communication or collaboration. There are also smaller level criteria like message size. Use of the CCTS optimizes message clarity and makes sure the right message reaches its' intended audience optimally. The studied organisation had a fairly advanced culture in this sense. The employees were experienced communication tool users and were able to adapt to new tools fast. Despite the high standard of adaptability, there were problems with the social network collaboration tool. Socialcast functions through posting microblogging-type statuses, but this did not happen at times. Some users used this microblogging platform to post full-size blog posts. This obscured the use of the tool and frustrated many users.

After reviewing the interviews it was clear that two tools stood out as most popular: the chat program Lync and the social networking service Socialcast. The popularity of Lync can be explained by its' simplicity and usefulness in a wide range of situations. Having the person you want to communicate with available in a small chat window when needed constitutes a powerful communication tool. Lync also functioned as the video conferencing platform, so it was definitely a very important tool in the organisation. Socialcast, the corporate social network service was the tool that was exceedingly popular in the organisation. It had created a sort of buzz in a short time and despite the fact that some users didn't use it correctly it was gaining more popularity. Regardless, Socialcast was perceived to have downsides; there was no integration between other tools, and its' newsfeed functionality was unwieldy. If those features could be fixed it would definitely gain popularity even faster.

Secondly, the research sought to find whether the right collaboration tools were promoted within the organisation. The interviewees were asked if they thought a tool should be boosted more, or if a tool that was being promoted was, in fact unnecessary or even useless. Grudin (1994b) found that critical mass of users is required to universal access to the tools. If this critical mass isn't reached, it reduces the benefits for the individual user. This way communication tools are different from other technological innovations Grudin (1994b) states; interdependence between early and late adopters is reciprocal rather than sequential. Early adopters don't get any benefits before late adopters, as critical mass is required for the tool to flourish. This phenomenon could be identified in the also in the studied organisation, and many of the interviewed active users were aware of it. In order to get a collaboration tool to reach it's full potential, as many people as possible have to be using it. The organisations social networking tool, Socialcast, had a strong hype going on and it was clearly the tool what the main crowd was using. Even though Socialcast had reached a critical mass, the active users thought it could be better with even more users, and thus should be promoted even more.

A tool that didn't get much support was "Sphere", the company's internal ideation platform. Problem with Sphere was that it wasn't designed in a way that attracted people to use it. The suggestions made for new products and services seemed to vanish into an abyss. The fact that there was no transparency in the process of scrutinizing an employee's idea discourages them to submit them. Sphere should have been promoted more, but also its' functionality should have been redesigned. There were no tools that suf-

fered lack of promotion other than general knowledge of all the social collaboration tools available for work in the organisation. The main tool for projects, Microsoft Sharepoint based Workspaces wasn't popular. Many users didn't like it and didn't prefer using it. This was due to the bad usability of the platform. Unintuitive visual layout, confusing usability were features that kept it from being a popular tool. Interestingly it was the organisations main collaborator's software, so it couldn't be switched to a better option.

Thirdly, the research sought to identify deficiencies in the social collaboration tool quiver of the organisation. The interviewees were also urged to describe additional tasks or problems that might be made easier with the help of a collaboration tool.
Two types of tools lacking from the organisation stood out in several interviews. A cloud based file repository like Dropbox was the first one. Sharing files wasn't seamless in the organisation; files couldn't be shared in chat tools with a direct link to a file; instead employees had to go to Workspaces -tool's location where files utilized by teams were stored. Another tool that was mentioned missing in several interviews was a simple editing program where multiple users could edit a document simultaneously in real time, meaning no saving of the document needed to be done in order to see the other users input and changes. This feature that was first made possible with Google Docs, is just now slowly being incorporated to competitors' tools. The last feature generally thought lacking was mobile access to all tools. Some tools did not have it at all; with some it was possible but not fluent. The situation in even in the corporate field with social collaboration tools has changed significantly after the conduction of these interviews; today mobile access is a must.

On the whole the interviews gave a general impression that there are enough social collaboration tools in the organisation and most have function that is needed. The corporate social networking platform was the tool of choice for the majority. It seemed clear that supporting the tool that is used by the main crowd is only beneficial, as this way most benefit is reaped with the tool. Even though not all interviewees liked using Socialcast, it catered the needs of extremely heterogeneous user groups. To optimize the functionality of Socialcast, the organisation should make sure that everyone is not just aware of the program, but also use it correctly, since employees that use it in a wrong way (post blog size posts instead of microblogging) impair the tool's usefulness.

A few key features were missing from the tools that were available in other commercial social collaboration tools regarding the access of documents with the tools, integration was not optimal between different tools, and one essential tool's usability didn't meet the expected standard. With that being said, the selection of tools compared to other similar organisations was very comprehensive, and the way the organisation reacted to employee needs regarding the tools was impressive.

5.2 Study Limitations and Reliability

There are numerous ways to evaluate study reliabilities; I've chosen the point of view Eskola & Suoranta (1998) present in their book (1998) that consists of four ways to scrutinize the reliability of qualitative research.

Credibility evaluates the appropriateness of the research design and methods. In qualitative research where interviews are the main source of data, credibility can be achieved if the interpretations of the researcher match the interpretations of the interviewees.
In order to get in-depth knowledge of the organisation and to figure out the right research questions, I joined in the organisation examined in this study as a thesis worker for about six months. In Chapter 5 (results), I analyze the answers of the interviews (Chapters 4.1 & 4.2) and have included a collection of quotes from the interviewees to back up my analysis. These quotes validate the research design and convey the mutual understanding between the interviewer and the interviewee.

Transferability refers to utilizing findings in other similar cases with certain conditions. Generalization as such is not the best option in qualitative research, but it can be evaluated whether the findings would to apply to similar organisations in similar situations. The findings followed to some extent the findings from a study of "diffusion of innovation" (Rogers, 2003). In Rogers' study it is found how the adoption of a new technology becomes more common as market share for the technology rises, meaning that the technology becomes "main stream". Persons adapting a new technology fast are early adaptors and those who adapt a technology later are late adaptors. The last persons adapting a technology are laggards (Rogers, 2003). One condition for transferability is that the

organisation would consist of people who are used to using cutting edge technology tools in their work.

Dependability in qualitative research requires that the researcher can understand and describe the context and setting of the study. This extends the traditional idea of reliability, which assumes that if another researcher would follow the exact same processes and procedures and executed the same study as was done before, they would reach the same results and conclusions (Yin, 1984).
This study is a qualitative single case study. The main data for this study includes interviews of social collaboration tool users with questions related to social collaboration tool use and preferences in the organisation. The interview questions can be found in Appendix 1. The interviews were conducted as depicted in chapter 3.3.3. As the interviews were chats, the answers were transcribed in the interview situation, and are archived.
The repeatability of the study suffers from the fast pace of change in the context of corporate social collaboration tools. From the time the interviews were conducted to this day, the tools and user preferences have evolved enormously fast. Employees' developed social collaboration tool user preferences might have changed to another level not comparable with the time of the interviews.

Conformability considers how the researchers own perspectives affect the results. While the goal for the researcher is to be neutral, particularly in qualitative research this is practically impossible. In this study the unknown territory of the research topic made it easier to be neutral, since all findings are fairly new. The nature of the organisation also minimized prejudice attitudes about the interviewees. A technology company is full of tech-savvy employees that are an unusually homogenous user crowd regarding social collaboration tool activity (Eskola & Suoranta, 1998).

5.3 Future Research

To my knowledge this study was the first one of it's kind. Because of this the theory used in this study is extremely fragmented; most of the research papers utilized in this

study had something to do with the subject but often it was not a lot. The fact that this was a new area of research, ended up generating many questions that there simply was no answer to. Because of this there were many ideas for future research.
The importance of different social collaboration tools varied for employees in different work positions. Considering this, it isn't as important to study what type of social collaboration tool is the most useful for an organisation, but how to get everyone to use the tools. This dilemma should be approached by researching the user habits of active users and non-active users. More research needs to be done examining the dynamics of those user groups' differences. Some cues were given to this dilemma in this study; active users found the connection through a social collaboration tool enough a reason to get to know a person face to face, where as this wasn't the case with a non-active user. Actives had more positive experiences in their work with social collaboration tools and that further pushed them to use the tools. How to get the non-actives to be a part of this positive spiral of networking with the use of these tools has the potential of uncovering a new level of usefulness for social collaboration tools.

Another interesting point that arose from the interviews was that some employees found the social networking platform a counter intuitive tool for their work. This lead to the idea that not all employees need a certain type of social collaboration tool, it can actually be detrimental to the work. In this case it was two interviewees who worked with industrial design. From their point of view Socialcast was only bothering them from doing their work. This didn't mean that they thought all social collaboration tools were useless; they just didn't have a tool they would have preferred to use. Researching what elements are useful to certain type of work in social collaboration tools could help create more useful and thus more popular social collaboration tools. He definitive usefulness of social collaboration tools lies within the power of the crowds. Harnessing the crowds to use the tools will actualize the potential.

5.4 Practical Implications

The organisation researched in this study was extremely large; it operates globally and employed about 60 000 employees at the time of the study. It certainly isn't an easy task

to manage social collaboration tools for an organisation this size. The dilemma with social collaboration tool development is that at the time of the study there were no example cases related to optimal social collaboration tool selection or how to promote them optimally. The quality of choices made would manifest themselves over time.
This study identified elements that would have a good chance of leading to higher utilization of the tools and better quality of the tools.

Convincing people to use the social collaboration tools is a challenge with no undiscovered revolutionary methods. But there was room for improvement in the existing methods in the organisation. *New employee orientation* was a situation where social collaboration tool introduction could have been better implemented. In addition to this more emphasis should be done internally *promoting the tools for existing employees*. At the time of the study some of the interviewees weren't even aware of the most popular social collaboration tool, Socialcast. Profiling the tools and their purpose should be a key element in the promotion. Upper management was active with the tools, which is a must for tool success. *A social collaboration tool could be embedded into a work process*, but only if it made sense by making the work easier or faster.

Improving the usefulness of the social collaboration tools should be a never-ending process in the organisation. At the time of the study *mobile access* was missing from most tools. This was a significant functionality that needed to be fixed.
Another weakness was the inaccurate use of a social collaboration tool. The organisation's social networking platform functioned through microblogging, but some employees entered blog sized posts that didn't serve a point in the platform. It actually drove some employees away from the platform. Promotion of *guidelines to choosing the right collaboration tool for a message* was needed.
All of the tools would benefit from *better integration*. Connecting the tools together would have made all tools more essential and employees would end up using more tools through one popular tool. A user might not even have to distinguish which tool he or she is using if a tool was functioning inside another tool.
Defining a need and building a tool to fulfill that need is a way to make a tool useful. It can be better to have a tool to do one thing instead of ten. With new social collaboration tools careful evaluation should be done to decide if a separate new tool is needed, or can the tool be an added feature in an existing tool.

External user access to the tools is something that the organisation should carefully consider increasing. It involves risks, but if designed carefully, it would definitely be beneficial, as a bigger crowd in social collaboration tools is mainly beneficial with more ideas and skills available.

Supporting social collaboration tools sounds obvious, but hardly is. Some employees will have reservations for corporate social collaboration tools like Socialcast; they may think they will end up with more work to do if they are active in the platform. To make it clear this isn't the case, *all levels of management should promote the use social collaboration tools* starting from the top. Social collaboration tool adaption without an example from management doesn't signal that the organisation believes in the benefits of the tools. Above all, *the most popular social collaboration tool should be endorsed the most.* The majority of the collaboration tool users will use that tool and its' influence exceeds all others.

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APPENDIX 1

1. Which of these social collaboration tools do you use or follow? (daily, bi-daily, weekly, monthly, never)

•Socialcast
•Bloghub
•Videohub
•Office Communicator / Lync
•Workspaces
•Mysite
•Company X Internal Wiki
•Company X Sphere

Considering that the tools that employees use were more or less all in the list of tools observed in this research, I also thought it would be logical to find out how important people consider the tools in their daily work compared to each other.

2. Can you rank the above tools based on their usefulness for your collaboration & information needs?

To find out more precisely how big of a role the tools play in peoples' workday, I asked how long they spend time using the tools.

3. How long on an average do you spend time per day using these tools?

One of the objectives of this research was to find out how the tools available could be made better.

4. About the tool(s) you use the most – how could it be made even better?

I also wanted to find out about nuisances and weaknesses in the tools. This I considered a good alternative way of finding out how the tools could be made better in case the interviewee didn't have a clear answer in the previous question.

5. About the tool you use the most – what are its' weaknesses? What do you find annoying?

I considered from previous studies that people only actively use a few tools, so the next question's intention was to find improvement ideas in the tools they don't use so often.

6. What about the other tools – is there one or more you would you use more often if they would first be improved?

A number of studies identify advantages provided by the use of social collaboration tools, but also challenges. This question's purpose was to find out what kind on advantages company X's employees experience the tools provide for them.

7. How do you feel the tools mentioned help you in your work?

To get an insight on how to make these tools better, it is important to know how they are being used. In this question I wanted to find ways employees use social collaboration tools in company X.

8. Can you describe a typical situation how you utilize the tool you prefer in your everyday work?

There are studies that show social tools can make employees more inefficient. I wanted to find out if employees feel this way about the tools discussed.

9. Do think some of the listed tools are counter-productive / not useful at all?

As the social communication tools available for public are extremely advanced today, it is hard for the company equivalents to be just as developed considering there are limited funds available to develop them. But it is natural to think employees use these public

tools also. Purpose of this question was to find out what tools available outside work they would consider useful for company X to have.

10. Is there a collaboration tool company X doesn't have that you feel would be useful?

Half of the workers interviewed were active users of the social collaboration tools. As company X deals very much with information technology, it's only logical to think these interviewees have ideas on how to develop social collaboration tools in the company.

11. Do you have other ideas of how collaboration tools should be further improved in company X?

The other subject discussed in this paper is employee networks. With this question, I looked for effects the tools discussed have with the employee's personal network at work.

12. How do you feel the collaboration tools you use in your work have affected your employee network (circle of people you are in contact with through your work)? Has the network become larger?

This questions intention was to identify the development of the social collaboration tools on a two-year term.

13. Compare the situation for example two years ago. Is it now easier to maintain virtual relations with people outside your direct team with the help of the current collaboration tools?